AIR MONITORING SUMMARY REPORT

Hot Spot Delineation and Excavation
Remedial Action, Parcel E-2
Hunters Point Naval Shipyard
San Francisco, California

Monitoring Period March 20th, 2017 through April 30th, 2017

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BASE REALIGNMENT AND CLOSURE
Program Management Office, West
33000 Nixie Way, Building 50
San Diego, California 92147

DEPARTMENT OF THE NAVY
Naval Facilities Engineering Command Southwest
San Diego, California

Prepared by:

Gilbane Federal
55 Hawthorne Street, Suite 445
San Francisco, California 94105

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LIST OF ABBREVIATIONS AND ACRONYMS

AMSR	Air Monitoring Summary Report
Cal/OSHA	California Occupational Safety and Health Administration
Cfm	cubic feet per minute
CFR	Code of Federal Regulations
CTO	Contract Task Order
DCP	Dust Control Plan
EPA	United States Environmental Protection Agency
Gilbane	Gilbane Federal
HPNS	Hunters Point Naval Shipyard
L/min	liters per minute
mg/m^3	milligrams per cubic meter
Navy	U.S. Department of the Navy
NIOSH	National Institute for Occupational Safety and Health
PAH	polycyclic aromatic hydrocarbon
PEL	permissible exposure limit
PCB	polychlorinated biphenyl
PM10	particulate matter less than 10 microns in diameter
PUF	polyurethane foam
SSHO	Site Safety and Health Officer
TWA	time-weighted average
$\mu g/m^3$	micrograms per cubic meter

1.0 INTRODUCTION

This Air Monitoring Summary Report (AMSR) was prepared by Gilbane Federal (Gilbane) as requested by the United States Department of the Navy (Navy) under Radiological Environmental Multiple Award Contract N62473-10-D-0808, Contract Task Order (CTO) 0007. Gilbane is performing air monitoring at Hunters Point Naval Station (HPNS) in accordance with the Final Dust Control Plan (DCP), included as Appendix D to Hot Spot Delineation and Excavation Remedial Action Final Work Plan for Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California (ITSI Gilbane Company, 2014). The DCP describes the procedures that minimize dust during work activities, and requires air monitoring to ensure these procedures are effective. The DCP helps prevent exposure of residents and construction crews to potential airborne chemicals of concern, and dust from the work area.

This summary report describes the following:

- Where and how air monitoring samples were collected
- What test methods were used to analyze air monitoring samples
- How air monitoring data were evaluated

This AMSR summarizes the air monitoring activities conducted by Gilbane at Hunters Point Naval Shipyard (HPNS) from March 20th, 2017 through April 30th, 2017 and compares the results with the established action levels included in the Work Plan (ITSI Gilbane Company, 2014).

2.0 MONITORING SITE LOCATIONS

Air monitoring stations were deployed at one upwind and one downwind location from the work area whenever active soil handling operations were in progress. The activities during the period covered by new data in the document (i.e., March 20th, 2017 to April 30th, 2017) consisted of reloading and preparing RSY 4 pads for radiological survey. For further details of site activities, see Section 5.0. Based on past meteorological data, the prevalent wind direction at HPNS was from the west or west-southwest. Locations of RSY4 air monitoring stations are presented on Figure 1.

Air monitoring was performed to estimate and assess the impact of field activities. The location of air monitoring stations were determined based on the prevailing wind direction, and were modified as needed for accessibility and worker safety considerations. Wind direction was monitored daily using a wind sock. Atmospheric parameters were checked daily at www.wunderground.com from station

KCABRISB5 (see Attachment 1). Monitoring stations remained stationary while sampling was conducted. Each monitoring station included four different monitoring systems:

1. Asbestos
2. Particulate matter less than 10 microns in diameter (PM10),
3. Total Suspended Particulates (TSP), which was also analyzed for arsenic, lead and manganese.
4. Polyurethane Foam (PUF), which was analyzed for either polychlorinated biphenyl (PCB) or polycyclic aromatic hydrocarbon (PAH).

3.0 ANALYTICAL METHODS

3.1 Asbestos

Air samples were sampled and analyzed in accordance with National Institute for Occupational Safety and Health (NIOSH) Method 7400, from the *NIOSH Manual of Analytical Methods* (NIOSH, 1994). Method 7400 requires that samples were collected on three-piece cellulose ester filters fitted with conductive cowlings at a sampling rate of between 0.5 liters per minute (L/min) and 16 L/min. Each sample was collected over a period not to exceed 24 hours.

3.2 PM10

Air samples were sampled in accordance with the U.S. Environmental Protection Agency (EPA) reference sampling method for PM10, described in 40 CFR 50, Subpart J. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighted to determine the amount of PM10 collected.

3.3 TSP, Manganese, Arsenic and Lead

TSP samples were collected with a high-volume (39 to 60 cubic feet per minute [cfm]) air sampler in accordance with EPA's reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50, Subpart B. Each sample was collected on a filter over an approximately 24 hour period; the filter was then weighted to determine the amount of TSP collected. Once the filter weight was determined, the sample was analyzed for manganese and arsenic in accordance with one of the IO-3 methods identified in Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air (EPA, 1999), and for lead in accordance with a modified EPA Method 12. The equipment specifications and sampling procedures have complied with the specifications provided in the regulations for the sampler, filter, accuracy, calibration, and quality assurance.

3.4 PCBs/PAHs

No PCBs/PAHs samples were taken during this air monitoring period as there were no field excavations.

4.0 ANALYSIS OF AIR MONITORING DATA

Analytical data from air monitoring samples were compared with the threshold criteria listed in Table 1.

Table 1 Air Monitoring Threshold Criteria

Test Parameter	Threshold Criterion	Threshold Criteria Reference
Asbestos	0.1 fiber/cm^3	Cal/OSHA PEL
PM10	5,000 ug/m^3	Cal/OSHA PEL[a]
TSP	0.5 mg/m^3	Basewide HPNS Level selected to minimize overall permissible dust release from sites
Arsenic	0.010 mg/m^3	Cal/OSHA PEL
Lead	0.050 mg/m^3	Cal/OSHA PEL
Manganese	0.200 mg/m^3	Cal/OSHA PEL
PCBs	500 ug/m^3	Cal/OSHA PEL
PAHs	200 ug/m^3	Cal/OSHA PEL

Note:
[a] = Cal/OSHA PEL for particulates not otherwise regulated (respirator) used for PM10.
µg/m^3 = micrograms per cubic meter
Cal/OSHA = California Division of Occupational Safety and Health Administration
fiber/cm^3 = fiber per cubic centimeter
HPNS = Hunters Point Naval Shipyard
mg/m^3 = milligrams per cubic meter
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
PEL = permissible exposure limit
PM10 = particulate matter less than 10 microns in diameter
TSP = total suspended particulates

Construction and remediation activities conducted between February 28th, 2017 and March 16th, 2017 did not result in the exceedance of the established threshold criteria.

5.0 AIR MONITORING RESULTS

Weather information (including ambient pressure and temperature data) and air monitoring results are presented in the tables included as Attachment 1. Data was collected from upwind Station 10 and downwind Station 9 from March 20th, 2017 thru April 30th, 2017 during which Gilbane was reloading empty RSY pads and preparing the RSY pads for radiological survey. Samples were not collected during periods of site inactivity, rain events, and/or while site work was limited to non-earth moving tasks.

6.0 REFERENCE

National Institute for Occupational Safety and Health, (NIOSH), 1994. *Manual of Analytical Methods*.

United States Environmental Protection Agency (EPA), 1998. *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods*.

ITSI Gilbane Company, 2014. *Final Work Plan Hot Spot Delineation and Excavation Remedial Action, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California*. March.

FIGURES

Gilbane

Radiological Hot Spot
Parcel E-2
Hunters Point Naval Shipyard
San Francisco, California

Figure 1
Parcel E-2
RSY-4 Air Monitoring Locations

P:\Projects\07204.0000 NAVFAC SW RAD\07204.0007 X019 RA Hot Spot at Parcel E-2, HPS\18.0 Graphics\RSY-4 - Air Sampling Stations.ai 03/09/2017

ATTACHMENTS

Table 1
Ambient Pressure and Temperature Monitoring Results

Date	Ambient Pressure (in Hg)	Ambient Temperature (°F)
3/20/2017	29.89	57.6

Note:
°F = degree Fareheit
in Hg = inches of mercury
Data from (www.wunderground.com) (Station KCABRISB5)

Table 2
Asbestos Monitoring Results
Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

Sample, Date and Station Information			Sampler Run Information		Asbestos Fibers		
Sample ID	Sample Start Date[1]	Monitoring Station	Duration of Run (min)	Total Air Volume Monitored (m^3)	Asbestos (fibers)	Conc Asbestos (fibers/cm^3)	Exceedance (Yes/No)
MS09-032017	03/20/17	MS09	458	916	0	<0.0029	No
MS10-032017	03/20/17	MS10	447	894	0	<0.0030	No

Notes:
[1]Air sample was not collected on days with rain or when contaminated soil was not disturbed.
l/min = liters per minute
min = minutes
m^3 = cubic meters
fibers/cm^3 = fibers per cubic centimeter
< = below detection limit

Table 3
Particulate Matter, smaller than Ten Microns (PM10) Monitoring Results
Cal-OSHA Permissible Exposure Limit: 5.0 mg/m3

Sample, Date and Station Information			Sampler Run Information			PM10s	
Sample ID	Sample Start Date[1]	Monitoring Station	Air Flow (l/min)	Duration of Run (min)	Total Air Volume Monitored (m^3)	Concen-tration in Air (mg/m^3)	Exceedance (Yes/No)
Q0366243-MS09	03/20/17	9	1.135	1442	1358.18	0.010	No
Q0366245-MS10	03/20/17	10	1.126	1428	1348.03	0.019	No

Notes:
[+]Air sample was not collected on days with rain or when contaminated soil was not disturbed.

l/min = liters per minute
min = minutes
m^3 = cubic meters
mg = milligrams
mg/m^3 = milligrams per cubic meter
ug = micrograms

PM_{10}-particulate matter smaller than 10 microns in diameter
Samples analyzed by ALS Environmental
Sample locations are shown on Figure 1

Table 4

Total Suspended Particulates, Arsenic, Manganese, and Lead Monitoring Results

Cal-OSHA Permissible Exposure Limits: TSP - 0.5 mg/m3; Arsenic - 0.010 mg/m3; Manganese - 0.2 mg/m3; Lead - 0.05 mg/m3

Sample, Date and Station Information			Sampler Run Information			Total Suspended Particulates		**Arsenic**		Lead		Manganese	
Sample ID	Sample Start Date[1]	Monitoring Station	Ave Flow Rate (l/min)	Duration of Run (min)	Total Air Volume Monitored (m^3)	Concen-tration in Air (mg/m^3)	Exceedance (Yes/No)	Concen-tration in Air (mg/m^3)	Exceedance (Yes/No)	Concen-tration in Air (mg/m^3)	Exceedance (Yes/No)	Concen-tration in Air (mg/m^3)	Exceedance (Yes/No)
9288934-MS09	03/20/17	9	1.215	1442.40	1752.32	0.017	No	<0.000014	No	<0.000014	No	<0.000014	No
9288935-MS10	03/20/17	10	1.209	1429.20	1727.30	0.052	No	<0.000014	No	0.000075	No	0.000048	No

Notes:

[1]Air sample was not collected on days with rain or when contaminated soil was not disturbed.

mg = milligrams

mg/m^3 = milligrams per cubic meter

< = below detection limit

Samples analyzed by ALS Environmental

Sample locations are shown on Figure 1

J = estimated value

l/min = liters per minute

min = minutes

m^3 = cubic meters